CCS Rule Change Notice For:

RULES FOR CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING LIQUEFIED GASES IN BULK

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Beijing

Brief Introduction

1. According to CCS decision on the implementation of IACS resolution released recently, the content of the newly revised IACS UR G3(Rev.7 Dec 2019) is included in this change notice. Revision is made on the following : add ccs 5.12.1, delete ccs 5.13.1.a (1)、ccs 5.13.1.c.

This Change notice is to be implemented for piping components and pumps when application for testing is dated on or after 1 January 2021, or which are installed in new ships for which the date of contract for construction is on or after 1 January 2021.

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PART THREE THE INTERNATIONAL CODE FOR THE CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING LIQUEFIED GASES IN BULK

CHAPTER 5 PROCESS PRESSURE VESSELS AND LIQUID, VAPOUR AND PRESSURE PIPING SYSTEMS*

* The amendments to this chapter 5 is to be implemented for piping components and pumps when application for testing is dated on or after 1 January 2021, or which are installed in new ships for which the date of contract for construction is on or after 1 January 2021.

5.12 Materials

5.12.1 The choice and testing of materials used in piping systems shall comply with the requirements of chapter 6, taking into account the minimum design temperature. However, some relaxation may be permitted in the quality of material of open-ended vent piping, provided that the temperature of the cargo at the pressure relief valve setting is not lower than -55°C, and that no liquid discharge to the vent piping can occur. Similar relaxations may be permitted under the same temperature conditions to open-ended piping inside cargo tanks, excluding discharge piping and all piping inside membrane and semi-membrane tanks.

CCS5.12.1 For an outer pipe or duct equipped with mechanical exhaust ventilation having a capacity of at least 30 air changes per hour, the effects of both pressure and possible low temperature in the event of a high pressure line failure shall be taking into account.

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5.13 Testing requirements

5.13.1 ***Type testing of piping components***

5.13.1.1 Valves①

CCS 5.13.1.a Valves

~~*(1) Prototype Testing*~~

~~*① Each size and type of valve intended to be used at a working temperature below -55°C is to be approved through design assessment and prototype testing. Prototype testing for all valves to the minimum design temperature or lower and to a pressure not lower than the maximum design pressure foreseen for the valves is to be witnessed in the presence of CCS surveyor. Prototype testing is to include hydrostatic test of the valve body at a pressure equal to 1.5 times the design pressure, and cryogenic testing consisting of valve operation or safety valve set pressure, and leakage verification. In addition, for valves other than safety valves, a seat and stem leakage test at a pressure equal to 1.1 times the design pressure.*~~

~~*② For valves intended to be used at a working temperature above -55°C, prototype testing is not required.*~~

~~*(2)*~~ *(1)Unit Production Testing*

① *All valves are to be tested at the plant of manufacturer in the presence of CCS surveyor. Testing is to include hydrostatic test of the valve body at a pressure equal to 1.5 times the design pressure for all valves, seat and stem leakage test at a pressure equal to 1.1 times the design pressure for valves other than safety valves. In addition, cryogenic testing consisting of valve operation and leakage verification for a minimum of 10% of each type and size of valve for valves other than safety valves intended to be used at a working temperature below -55°C. The set pressure of safety valves is to be tested at ambient temperature. For valves② used for isolation of instrumentation in piping not greater than 25mm, unit production testing need not be witnessed by the CCS surveyor. Records of testing are to be available for review.*

② *As an alternative to the above, if so requested by the relevant Manufacturer, the certification of a valve may be issued subject to the following:*

i. The valve has been approved as required by CCS5.13.1.a(1) for valves intended to be used at a working temperature below -55°C, and

ii. The manufacturer has a recognized quality system that has been assessed and certified by CCS subject to periodic audits, and

iii. The quality control plan contains a provision to subject each valve to a hydrostatic test of the valve body at a pressure equal to 1.5 times the design pressure for all valves and seat and stem leakage test at a pressure equal to 1.1 times the design pressure for valves other than safety valves. The set pressure of safety valves is to be tested at ambient temperature. The manufacturer is to maintain records of such tests, and

iv. Cryogenic testing consisting of valve operation and leakage verification for a minimum of 10% of each type and size of valve for valves other than safety valves intended to be used at a working temperature below -55°C in the presence of CCS surveyor.

~~*(3)*~~ *(2)Testing of safety relief valve is also to comply with the requirements of 8.2.5.*

CCS5.13.1.b Cargo Pumps

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① Refer to SIGTTO Publication on "The Selection and Testing of Valves for LNG Applications".

② The requirements are to be implemented for valves when an application for testing is dated on or after 1 January 2017 or which are installed in new ships for which the date of contract for construction is on or after 1 January 2017.

5.13.1.2 Expansion bellows

~~*CCS 5.13.1.c CCS may waive performance of the tests referred to in this paragraph provided that complete documentation is supplied to establish the suitability of the expansion joints to withstand the expected working conditions. When the maximum internal pressure exceeds 0.1 MPa gauge this documentation is to include sufficient test data to justify the design method used, with particular reference to correlation between calculation and test results.*~~

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